18.1200 A,18.9200

77679
SOV/148-60-1-2/34

AUTHORS: Kripyakevich, P. I., Tylkina, M. A., Savitskiy, Ye. M.

TITLE: New Compound in Rhenium-Zirconium System and Its Crystal Structure

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 1, pp 12-15 (USSR)

ABSTRACT: In addition to hexagonal $ZrRe_2$ whose lattice constants were known to be a = 5.251 kX, c = 8.576 kX, and mp 2,400° C, two of the authors found a new compound of $Zr_2Re$ composition with mp 1,900° C. In order to study this and other Zr-Re compounds by X-ray methods, 7 different Zr-Re alloys were prepared containing 68.32; 73; 81.29; 83; 88.96; 90.25 and 96% Re, respectively. The mixed powders of two metals were compressed into briquets, sintered at 1,500° C in a He-filled arc furnace having 200 mm pressure, annealed at 1,400° C

Card 1/5

for 10 hrs, hardened from the same temperature, annealed again at 1,000° C for 50 hrs and hardened from this. $ZrRe_2$ proved to change its lattice constants from a = 5.273 kX and c = 8.638 kX to a = = 5.258 kX and c - 8.608 kX at the change in the alloy composition somewhere between 68.32% Re and 73% Re; still further increase of the Re content did not affect the lattice constants of $ZrRe_2$. The alloys with 83% Re and 88.96% Re begin to show diffraction lines of a new body-centered cubic phase $\chi$ in addition to those of the $\lambda$-phase of $ZrRe_2$ composition. The new phase constitutes the alloy with 90.25% Re completely. The alloy with 96% Re shows equally intensive diffraction lines of the cubic phase and of pure Re. Annealing and hardening at 1,400° C did not alter the phases readily existing in the sintered alloys, while hardening of the alloy with 73% Re from 1,000° C gave rise to the appearance of diffraction

lines other than those of the above phases. The newly discovered body-centered cubic phase proved to have a = 9.693 ± 0.005 kX and a = 9.626 ± 0.005 kX in the alloys containing 83 and 90.25% Re, respectively. The lattice constant, changing with the Re content, points to the transitional nature of this phase. Its chemical formula would be $Zr_5Re_{24}$ if the atoms of two metals were distributed in a perfect order like, for instance, in $Ti_5Re_{24}$. However, its structure, similar to that of $\alpha$ -Mn (space group I 43 m), permits occupation of any atomic position by Zr or Re and this leads to the change in the composition and lattice spacing. The increased Re (atomic radius = 1.37 kX) content on the expense of Zr (atomic radius = 1.60 kX) reduces the lattice constant. The interatomic distances in the body-centered cubic phase are given in Table 2. The mp is about 2,500° C and the micro hardness about 1,000 kg/cm$^2$. Zr-Re form the only binary alloy in which $\chi$ - and $\lambda$ -phases coexist. In other similar

New Compound in Rhenium-Zirconium System and Its Crystal Structure

77679
SOV/148-60-1-2/34

alloys, $\chi$ -phase excludes $\lambda$ -phase instead of which $\sigma$ -phase appears. The $Zr_2Re$ compound is, according to the preliminary data, believed to have a structure similar to that of $\sigma$-phase. There are 2 tables; and 8 references, 4 Soviet, 2 Polish, 1 German, 1 U.S. The U.S. reference is: P. Greenfield, P. A. Beck, J. Metals, 1956, 8, p 1, 265.

ASSOCIATION: L'vov State University and the Institute of Metallurgy at the Academy of Sciences of the USSR (L'vovskiy gosudarstvennyy universitet i Institut metallurgii AN SSSR)

SUBMITTED: November 4, 1958

Card 4/5

New Compound in Rhenium-Zirconium System and Its Crystal Structure

77679
SOV/148-60-1-2/34

Table 2.

| | Zr (a) | Zr (c) | Re ($g_1$) | Re ($g_2$) |
|---|---|---|---|---|
| Zr (a) | — | 3,05 (4) | — | 2,92 (12) |
| Zr (c) | 3,05 (1) | — | 2,68 (3)<br>3,18 (3)<br>2,90 (6)<br>3,12 (3) | — |
| Re ($g_1$) | — | 2,68 (1)<br>3,18 (1) | 2,88 (6) | 2,64 (1)<br>2,70 (2)<br>2,87 (2) |
| Re ($g_2$) | 2,92 (1) | 3,12 (1)<br>2,90 (2) | 2,64 (1)<br>2,70 (2)<br>2,87 (2) | 2,41 (1)<br>2,58 (2) |

Card 5/5

24.7100

78102
SOV/70-5-1-11/30

AUTHOR: Kripyakevich, P. I.

TITLE: The Structure of Metals With High Coordination Numbers

PERIODICAL: Kristallografiya, 1960, Vol 5, Nr 1, pp 79-83 (USSR)

ABSTRACT: Some 250 known types of structures of metals and intermetallic compounds can be classified by space groups, stoichiometric formulas, density of packing, or the type of chemical bonds. The author prefers, however, the use of coordination numbers of atoms for this purpose, since they predetermine the form of coordination polyhedra, the ways of occupation of the latters' vertices and, consequently, any type of structure. Thus, he distinguishes 7 classes of structures, each defined by identical or closely similar coordination polyhedra: tetrahedron (c.n.4); octahedron (c.n. 6); trigonal

Card 1/7

prism (c.n. 6); cube (c.n. 8); twisted (Thomsonian) cube (c.n. 8); cuboctahedron and its hexagonal counterpart (c.n. 12); icosahedron (c.n. 12). As the basis of structures with high coordination numbers only icosahedron (1a, Fig. 1) and its distorted variety is analyzed along with more complex polyhedra with 12, 13, 14, 15, 16, 17, 20, 22, and 24 vertices (Fig. 1). The symmetries of the shown polyhedra and the crystals in which they occur are: (I) m3, $Cr_3Si$; (II) $\bar{6}2m$, $CaZn_5$; (III) 3, $Mg_2Zn_{11}$; (IV) mm, $Mg_2Zn_{11}$; (V) m, $Th_2Zn_{17}$; (VI) m, $\alpha$-Mn; (VII) m, $Th_6Mn_{23}$; (VII) mm, $Mg_2Zn_{11}$; (IX) 6mm, $V_2Ni$; (X) mm, $Ti_2Cu$; XI m3m, $Th_6Mn_{23}$; (XII) $\bar{6}2m$, $\mu$-$W_6Fe_7$; (XIII) $\bar{4}3m$, $MgZn_2$; (XIV) mm, $MgZn_2$; (XV) 4mm, $Th_6Mn_{23}$; (XVI) 4/mmm, $ThMn_{12}$; (XVII) 6/mmm, $CaZn_5$; (XVIII) mm, $BaCd_{11}$; (XIX) 4 , $NaZn_{13}$. All

the polyhedra are convex except IV, VII, VIII, and XI, which have reentrant corners. Polyhedra III, IV, VI, VII, X, XIV, TO XIX have 1-6 quadrangular and 14-32 triangular faces; all the others have only triangular faces. Polyhedra I, IX, XII, and XIII are closely related because of equal (12) number of vertices at which 5 triangular faces join together. They frequently occur combined and are very abundant The affinity of structure types is reviewed in 4 divisions: (1) most closely related, (2) very closely related, (3) closely related, and (4) least closely related. Division (1) includes the structures in which atomic positions are identical but are occupied by the constituent atoms R and X differently and where the number of atoms in, and the symmetry of, unit cells may or may not differ; (2) includes the structures of compounds with identical formulas such as of $A_pB_rC_sD_t$ or $R_mX_n$ type and those with

nearly identical coordination polyhedra where the symmetry and number of atoms in unit cells may differ; (3) includes the structures of compounds with identical formulas, identical coordination polyhedra, but with differing atomic positions; (4) includes the structures (a) where the sums of coordination numbers and coordination polyhedra in the unit cells are identical but the numbers of atoms with identical coordination numbers and chemical formulas differ, and (b) where the coordination numbers and coordination polyhedra are identical only for a part of the constituent atoms and the chemical formulas differ. All the structure types with high coordination numbers obey one rule: the number of atoms with maximum coordination number drops with the increasing value of the maximum and, consequently, the mean coordination number remains almost constant, varying only within a limited range from 12.9-13.5.

Ye. I. Gladyshevskiy is acknowledged for discussions.

The Structure of Metals With High Coordination Numbers

78102
SOV/70-5-1-11/30

There are 1 figure; 2 tables; and 33 references, 13 Danish, 8 German, 7 Soviet, 1 Swedish, 1 Italian, 1 Polish, 1 U.S., 1 U.K. The U.S. and U.K. references are: W. Rostoker, J. Metals, 4, 2, 209 (1952); G. Bergman, J. L. T. Waugh, L. Pauling, Nature, 169, 4312, 1057 (1952).

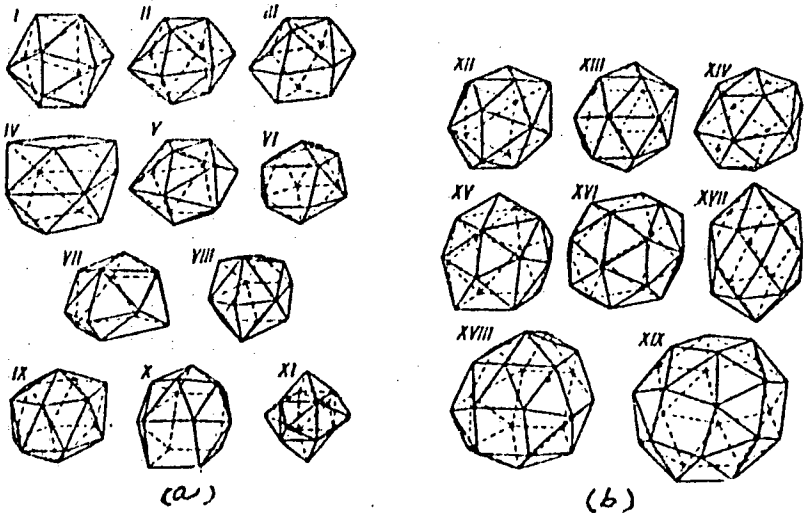
ASSOCIATION: L'vov State University imeni I. Franko (L'vovskiy gosudarstvennyy universitet imeni I. Franko).

SUBMITTED: July 13, 1959

Card 5/7

The Structure of Metals With High Coordination Numbers

78102
SOV/70-5-1-11/30




Card 6/7

Fig. 1. (See caption on Card 7/7)

Fig. 1. (a) Coordination polyhedra for coordination numbers 12 (I, II, III, IV), 13 (V, VI, VII, VIII), and 14 ((IX, X, XI); (b) coordination polyhedra for coordination numbers 15 (XII), 16 (XIII), 17 (XIV, XV), 20 (XVI, XVII), 22 (XVIII), and 24 (XIX).

KRIPYAKEVICH, P.I.

Structures of $\alpha$-Mn and $\beta$-Mn. Kristallografiia 5 no.2:273-281 Mr-Ap '60. (MIRA 13:9)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.
(Manganese)

KRIPYAKEVICH, P.I.

Crystal structure of the compound $YAl_2$. Kristallografiia 5 no.3:463-464 My-Je '60. (MIRA 13:8)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.
(Yttrium-aluminum alloys)

82505

24.7100

S/070/60/005/004/005/012
E132/E360

AUTHORS: Gladyshevskiy, Ye.I. and Kripyakevich, P.I.

TITLE: The Crystal Structure of the Compound $Li_{15}Ge_4$

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 4, pp. 574 - 576

TEXT: Two compounds in the Li-Ge system were discovered by Pell (J. Phys. Chem. Solids, 3, 1-2, 74-7, 1957) - "$Li_4Ge$" and $Li_3Ge$ with m.p. 750 $^{o}$ $\pm$ 10 $^{o}$ and 800 $^{o}$ $\pm$ 10 $^{o}$, respectively. Crystallographic considerations show the correct formula of the former compound to be $Li_{15}Ge_4$. X-ray powder photographs were taken of alloys containing 14, 17, 20, 23 and 25 at. % Ge. The compound with 20% Ge was shown to be a mixture of Ge and "$Li_4Ge$". This compound was cubic with a = 10.761 $\pm$ 0.002 KX and invited comparison with $Cu_{15}Si_4$ (a = 9.694 KX) and $Na_{15}Pb_4$ (a = 13.29KX). Intensities were calculated with this structure and compared well with those observed. The structure is then one with Z = 4 and space groups $I\bar{4}3d = T_d^6$ having 12 Li in 12(a)

Card 1/2

82505
S/070/60/005/004/005/012
E132/E360

The Crystal Structure of the Compound $Li_{15}Ge_4$

positions; 48 Li in 48(e) positions with (x,y,z) = = (0.12, 0.16, 0.96); and 16 Ge in 16(c) positions with x = 0.208. The Ge atoms are 12-coordinated with a polyhedron intermediated between an icosahedron and the hexagonal analogue of a cubo-octahedron. $Li_I$ are surrounded by a deformed cubo-octahedron; $Li_{II}$ atoms are surrounded by a 13-gon similar to the configuration around $Mn^{(3)}$ in alpha-Mn. The structure is close packed. There are 2 tables and 3 references: 2 English and 1 German.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University im. I. Franko)

SUBMITTED: January 25, 1960

Card 2/2

82506

S/070/60/005/004/006/012
E132/E360

5.2610

AUTHORS: Kripyakevich, P.I. and Gladyshevskiy, Ye.I.

TITLE: The Crystal Structures of Certain Compounds of Palladium with Magnesium

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 4, pp. 577 - 579

TEXT: No compounds of Pd and Mg have been found hitherto. Alloys were prepared by fusing Pd and Mg under argon in a corundum crucible with an H.F. furnace. The thermal treatment was concluded with 250 hours annealing at 400 °C. X-ray powder photographs were taken with Cr radiation. Two compounds were found. PdMg is cubic with $a = 3.16 \pm 0.01$ KX and a primitive lattice. Intensities calculated for a CsCl-type structure ($Pm3m$- $O_h^1$) agreed well. An alloy with 45 at. % Mg contained neither PdMg nor Pd. It was tetragonal with $a = 3.02 \pm 0.01$ KX and $c = 3.41 \pm 0.01$ KX. These values suggest an AuCu type structure and intensity calculations confirmed this. For the composition $Pd_{1.1}Mg_{0.9}$ this gives,

Card 1/2

82506

S/070/60/005/004/006/012
E132/E360

The Crystal Structures of Certain Compounds of Palladium with Magnesium

in the space group P4/mmm , 1Pd in 1(a) positions and 0.9Mg + 0.1Pd in 1(d) positions. In an alloy with 65 at. % Mg lines of PdMg and of a further unidentified compound were observed. Similar compounds have been found in the Pd-Zn and Pd-Cd systems.
There are 3 tables and 7 references: 4 German and 3 English.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University im. I. Franko)

SUBMITTED: January 29, 1960

Card 2/2

28714
S/021/61/000/008/009/011
18.9200 D210/D303

AUTHORS: Teslyuk, M.Yu. and Kryp'yakevych, P.I.

TITLE: Crystalline structure of the compound $MgInCu_4$

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 8, 1961, 1039-1041

TEXT: In a previous investigation the authors together with Ye. I. Glad'yshevskiy (Ref. 1: DAN, SSSR, 85, 81, 1952) found a ternary compound $MgSnCu_4$, with a crystalline structure of the type $MgCu_2$. As tin and indium have very similar atomic radii dimensions (1.58 and 1.66 Å respectively) and are situated next to one another in the periodic table, the authors postulated that in the system Mg-In-Cu there should exist a similar compound $MgInCu_4$. In order to confirm this supposition they prepared an alloy of Mg (99.999%) and copper (99.98%) in a corundum crucible with LiCl + KCl flux in a resistance oven. After the alloy had cooled to room temper-

Card 1/4

Crystalline structure of...

ature it was studied by means of X-rays. The radiogram of the alloy-powder, taken with copper cathode filtered rays in a Debye camera showed the lattice constant "a" to be 7.059 ± 0.006 Å, which is similar to that of $MgCu_2$ (7.019 Å). However, the presence on the radiogram of lines hko + k ≠ 4n, lines which are not typical of the space grouping of $MgCu_2$, proved that the structure of $MgInCu_4$ did not belong to the space group Fd3 - $O_h^7$, but to that F $\bar{4}3$ m - $T_d^2$, the same as $MgSnCu_4$. The X-ray data are given in a table. It is seen from these data that the intensities, calculated for the space group of $MgSnCu_4$ (4 Mg. in 4(a), 4 Sn in 4(c), 16 Cu in 16(e) with $\bar{x}$ = 5/8) are in good agreement with the observed ones. Thus the existence of a ternary compound $MgInCu_4$ has been confirmed. Foreign lines in the radiograms of $MgInCu_4$ are very weak and very few. They belong to the $\alpha$-phase (a solid solution of magnesium and indium in copper, a = 3.64 Å)

Card 2/4

and to some other phase, probably a low-temperature modification of $Cu_9In_4$. In the lattice structure of $MgInCu_4$ the Mg atoms have the coordination number 16 and the Cu atoms that of ≠ 12. Interatomic distances with the same c.n. ($d_{mg-In}$ = 3.06 Å; $d_{Cu-Cu}$ = 2.49 Å) are smaller than the corresponding sum of radii ($\sum r$). The distance Mg-Cu and In-Cu (2.93 A) is larger than $\sum r$ for Mg and Cu being approximately equal to $\sum r$ for In and Cu. The increase in the lattice constant "a" of $MgInCu_4$ in comparison with that of $MgSnCu_4$ (7.044 Å) and the increase in interatomic distances are due to the exchange of smaller tin atoms for the larger ones of indium. The compound $MgInCu_4$ is one of the small numbers of representatives of Laves phases with atoms of sub-groups III - VB in positions with c.n. 16. Indium atoms occupy these positions together with Mg atoms; where complete replacement of Mg by In takes place a compound of different crystalline structure is formed: that of $Cu_2In$, of $Ni_2In$ type. The series $MgInCu_4$ -

28714

Crystalline structure of.... S/021/61/000/008/009/011
D210/D303

$MgSnCu_4$ has no continuation. When indium or tin is replaced by the nearest elements of the II or V periodical groups (Cd or Sb) no ternary inter-metallic compounds are formed. There are 1 table and 7 references: 3 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: P.J. Black, Acta crystallogr. 8, 1, 39 (1955); H.J. Beattie, F.L. Ver Snyder, Trans.Am.Soc.Met.,45,397,(1953).

ASSOCIATION: L'vivs'kyy derzhavnyy universytet (L'viv State University)

PRESENTED: by Academician A UkrSSR, V.M. Svyechnikov

SUBMITTED: December 26, 1960

Card 4/4

28715
S/021/61/000/008/010/011
D210/D303

18.9200

AUTHOR: Kryp'yakevych, P.I.

TITLE: A ternary Laves phase in the system Mn-Co-Be

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no.8, 1961, 1042-1044

TEXT: On the basis of previous research it was thought that a ternary Laves phase should be present in a manganese-cobalt alloy with a metal having a smaller atomic radius than $r_{Si}$ (1.34 A; c.n. 12), for in this case the ratio K would be larger and nearer to 1.225. To verify this supposition the author investigated an alloy of Mn and Co with beryllium (r = 1.13 Å), the system not having been studied before. The composition of the ternary Laves phase of this system should be Mn $(Co\ Be)_2$ and the crystalline structure to correspond with the $MgCu_2$ or $MgNi_2$ type: that of $MgZn_2$ is less probable, because a compound $MnBe_2$ does exist with this

Card 1/ 4

A ternary Laves phase ...

type of structure in the binary system Mn - Be. 14 specimens of $MnCo_2$ - $MnBe_2$ were prepared. Radiograms of powdered alloys confirmed the author's assumption: Alloys $MnCo_{0.8}Be_{1.2}$ and $MnCo_{0.9}Be_{1.1}$ were homogeneous with a structure of the $MgCu_2$ type (cubic face-centered lattice, space group Fd 3m - $O_h^7$) the lattice constant "a" of $MnCo_{0.8}Be_{1.2}$ being 6.20 ± 0.01 Å. X-ray examination data are given in a table. To be certain that the ternary compound found was not a solid solution on the basis of the binary compound $MnBe_8$, some quarternary phase, containing oxygen or silicon contaminations was introduced during its synthesis. The author prepared another 6 alloys in the series $MnCo_{0.8-0.9}Be_{1.2-1.1}$ with $MnBe_8$. It was proved by X-ray examinations that none of these alloys were homogeneous, consisting of two phases of the $MgCu_2$ type; the first had "a" = 5.93 - 5.98 Å and the second "a"

Card 2/4

28715
S/021/61/000/008/010/011
D210/D303

A ternary Laves phase ...

near to 6.20 Å; the same was found in alloys having 33.3 at % Mn and 4.7 - 5.7 at % Be. This proved that the phase $MnCo_{0.8-0.9}Be_{1.2-1.1}$ was not a solid solution on the basis of $MnBe_8$. The presence of oxygen in a phase with a $MgCu_2$ structure is not possible, because the oxygen atoms are too small (0.60 Å) to replace Co or Be, but are too large to fit into the tetrahedral hollows of the structure; octahedral hollows, which O atoms could occupy are absent in Laves phase structures. Chemical analysis gave the silicon content in the investigated alloy as less than 0.5% b.w. To discover whether a phase of $MgCu_2$ type might exist in the complete absence of Si, the author prepared some alloys from $MnCo_2$ - $MnBe_2$, in $Al_2O_3$ crucibles with a flux KCl - NaCl; these alloys did not contain silicon and contained a phase of the $MgCu_2$ structure, with "a" = 6.20 Å. These investigations proved that the newly found phase was a true ternary compound of manganese, cobalt and beryllium; the formula was taken as $MnCo_{0.8}Be_{1.2}$. The

Card 3/4

28715

A ternary Laves phase ... S/021/61/000/008/010/011
D210/D303

intensities examination showed that Mn atoms occupy the position of Mg in $MgCu_2$ structure (regular system (8 (a); c.n. 16); Co and Be atoms occupy the positions of Cu (16(d); c.n.12); in this compound the radii ratio k equals 1.:0. The author expresses his gratitude to Ye. L. Gladyshevskyy for his helpful discussions. There are 2 tables and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: M. Hansen, K. Anderko, Constitution of binary alloys, (1958).

ASSOCIATION: L'vivs'kyy derzhavnyy universytet (L'viv State University)

PRESENTED: by Academician AS UkrSSR, I.M. Fedorchenko

SUBMITTED: September 1, 1960.

Card 4/4

24938

18.1215
21.2000

S/192/61/002/004/001/004
D217/D306

AUTHORS: Kripyakevich, P.I., Tylkina, M.A. and Savitskiy,

TITLE: Hafnium-beryllium compounds, their crystal structure and properties

PERIODICAL: Zhurnal strukturnoy khimii, n. 2, no. 4, 1961, 424 - 433

TEXT: The materials used for preparing the alloys were hafnium iodide (impurities: 0.48% Zr; 0.0022% Si; 0.006% Ti; 0.0012% Al; 0.003% Mg; 0.13% Mo) and beryllium (99.3% Be). Beryllium was further purified by repeated melting in a high frequency vacuum furnace under argon at a pressure of 50 mm Hg in BeO crucibles. Beryllium-base alloys containing 0.0025; 0.005; 0.013; 0.025; 0.10; 0.56; 1.24 and 2.44 atomic % Hf (0.05; 0.1; 0.25; 0.5; 2.0; 10.0; 20.0; 33.0 weight %) were also prepared in a high frequency vacuum furnace in BeO crucibles in an argon atmosphere, but the pressure was increased to 100 - 200 mm Hg.

Card 1/4

24938

S/192/61/002/004/001/004
D217/D306

Hafnium-beryllium compounds...

Hafnium-rich alloys, containing 7.74; 10.50; 16.80; 20.90; 33.73 and 51.64 atomic % Hf (62.5; 70.0; 80.0; 84.0; 91.0 and 95.5 weight %) were prepared in an arc furnace with a water-cooled copper hearth and an insoluble tungsten electrode, under argon (300 - 400 mm Hg pressure). The alloys were not subjected to heat treatment. X-ray investigation of the alloys was carried out by the powder method in a Debye camera (57.3 mm diameter) and in a Preston camera with chromium irradiation. The following properties were determined for a few alloys; melting point, hardness, microstructure and microhardness of the structural components. The melting point was determined in argon (400 mm Hg pressure) by the drop method, in which a hole drilled in the specimen is filled with the molten metal and the temperature determined by means of an optical pyrometer, calibrated with reference to the pure metals under identical conditions. The hardness was measured in a Rockwell machine according to scale B (2.5 mm diameter ball, 100 kg load), the microhardness was

Card 2/4

measured with a PMT-3 machine (100 gram load). The existence of the following 4 compounds was established: $HfBe_2$. $AlB_2$ type, a = 3.775 ± 0.002, c = 3.157 ± 0.001 kX, c/a = 0.836; $H_{\mu}$ = 980 kg/mm$^2$; $HfBe_5$, $CaZn_5$ type, a = 4.525 ± 0.010, c = 3.464 ± 0.010 kX, c/a = 0.765; $H_{\mu}$ = 1340 kg/mm$^2$; $Hf_2Be_{17}$, $U_2Zn_{17}$ type, a = = 7.484 ± 0.002, c = 21.861 ± 0.006 kX, c/a = 2.921; $H_{\mu}$ = 1085 kg/mm$^2$; $HfBe_{13}$, $NaZn_{13}$ type, a = 9.985 ± 0.002 kX; $H_{\mu}$ = 1200 kg/mm$^2$. There are 10 tables, 1 figure and 19 references: 5 Soviet-bloc and 14 non-Soviet-bloc. The references to the 4 most recent English-language references are: J.W. Nielsen, N.C. Baenziger, Acta Crystallogra, 7, 132 (1954). A. Zalkin, R.G. Bedford, D.E. Sands. Acta Crystallogra, 12, 9, 700 (1959). R.P. Elliott, W. Rostoker, Trans. Amer. Soc. Metals, 50, 617 (1958). J.F. Smith, D.M. Bailey. Acta Crystallogra, 10, 4, 341 (1957)/

ASSOCIATION: L'vovskiy gosudarstvenyy universitet im Iv. Franko. (L'vov State University im. I.V. Franko); Institut

24938

S/192/61/002/004/001/004
D217/D306

Hafnium-beryllium compounds...

metallurgii im. A.A. Baykova AN SSSR (Institute of Metallurgy im. A.A. Baykov, AS USSR)

SUBMITTED: July 5, 1960

Card 4/4

KRIPYAKEVICH, P.I.; GLADYSHEVSKIY, Ye.I.

Structure type $Cu_{15}Si_4$. Zhur.strukt.khim. 2 no.5:573-577 S-O '61.
(MIRA 14:11)

1. L'vovskiy gosudarstvennyy universitet imeni Iv.Franko.
(Crystallography)

20025

189200 1418, 1145, 1454, 1045 S/070/61/006/001/003/011
E032/E514

AUTHORS: Kripyakevich, P. I., Tylkina, M.A. and Savitskiy, Ye.M.

TITLE: Crystal Structures of Hafnium-Beryllium Compounds (A Preliminary Communication)

PERIODICAL: Kristallografiya, 1961, Vol.6, No.1, pp.117-118

TEXT: It is stated that the hafnium-beryllium system has not so far been investigated. The alloys prepared by the present authors contained 0.05, 0.1, 0.25, 0.5, 2.0, 10.0, 20.0, 33.0, 62.5, 70.0, 80.0, 84.0, 91.0 and 95.5% by weight of hafnium. The alloys were prepared by alloying hafnium and beryllium in an argon atmosphere in a high frequency or an arc furnace. The specimens were then subjected to X-ray analysis. For some alloys the melting point, the hardness and the microhardness of the structural components were determined. The microhardness $H_\mu$ was determined with a load of 100 g to within $\pm$30 kg/mm$^2$ using a ПМТ-3 (PMT-3) device. It was found that the following four compounds are present in the system:
1) $HfBe_2$, structural type $AlB_2$, sp.gr. C6/mmm - $D^1_{6h}$, a = 3.783$\pm$0.002, c = 3.163$\pm$0.001Å, c/a = 0.836, $H_\mu$ = 980 kg/mm$^2$;

Card 1/2

S/070/61/006/001/003/011
E032/E514

Crystal Structures of .....

2) $HfBe_5$, type $CaZn_5$, sp.gr. C6/mmm - $D^1_{6h}$, a = 4.534±0.010, c = 3.471±0.010 Å, c/a = 0.765, $H_\mu$ = 1340 kg/mm$^2$;

3) $Hf_2Be_{17}$, type $U_2Zn_{17}$, sp.gr. C6m2 - $D^1_{3h}$, a = 7.499±0.002, c = 21.905±0.006 Å, c/a = 2.921, $H_\mu$ = 1085 kg/mm$^2$;

4) $HfBe_{13}$, type $NaZn_{13}$, sp.gr. Fm3c - $O^6_h$, a = 10.005±0.002 Å, $H_\mu$ = 1200 kg/mm$^2$.

Thus, the Hf-Be system is close to the Zr-Be system from the crystal-chemical point of view. The latter also includes four compounds which are isostructural with the above compounds (N. C. Baenzinger, R. E. Rundle, Ref.2; J. W. Nielsen, N.C.Baenziger, Ref.3; A. Zalkin, R. C. Bedford, D. E. Sands, Ref.4). There are 4 references: all non-Soviet.

ASSOCIATIONS: L'vovskiy gosudarstvennyy universitet im. I.Franko (L'vov State University imeni I. Franko);
Institut metallurgii im. A. A. Baykova AN SSSR (Institute of Metallurgy imeni A.A.Baykov AS USSR)

SUBMITTED: May 3, 1960

Card 2/2

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; TESLYUK, M.Yu.; ZARECHNYUK, O.S.; KUZ'MA, Yu.B.

Crystalline structures of certain intermetallic compounds. Kristallografiia 6 no.2:267-268 Mr-Ap '61. (MIRA 14:9)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.
(Intermetallic compounds) (Crystal lattices)

KRIPYAKEVICH, P.I.

Structures of ThAl, PuNi, ThCo, and CaAg and their relation to the types CrB(TaB) and TlJ (yellow modification). Kristallografiia 6 no.4:626-629 Jl-Ag '61. (MIRA 14:8)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(Intermetallic compounds)

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; KUZ'MA, Yu.B.; TESLYUK, M.Yu.

New representatives of the structural types $Mg_6Cu_{16}Si_7$ and $Th_6Mn_{23}$. Kristallografiia 6 no.5:769-770 S-O '61.
(MIRA 14:10)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(X-ray crystallography)

S/137/62/000/008/034/065
A006/A101

AUTHORS: Cherkashin, E. E., Gladishevskiy, E. I., Kripyakevich, P. I., Teslyuk, M. Yu.

TITLE: The physico-chemical investigation of the Ce-Cu-Al and the Ce-Mn-Al systems

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 24 - 25, abstract 8I160 ("Dopovidi ta povidoml. L'vivs'k. un-t", 1961, no. 9, part 2, 58 - 59; Ukrainian)

TEXT: X-ray and microscopic analyses were used to study the Ce-Cu-Al and Ce-Mn-Al systems at a content of 50 - 100 at. % Al. In the Ce-Cu-Al system 4.3% (1.87 at. %) and 1.5% (0.64 at. %) Cu respectively are dissolved in Al at 500 and 400°C. Ce solubility in a solid solution Al (Cu) is insignificant (< 0.1%). At 400°C the Al-base solid solution ($\omega$-phase) is in equilibrium with binary ($CuAl_2$ and $CeAl_4$) and ternary ($T_1$ and $T_2$) compounds. Compound $T_1$ has a homogeneous range, including compound $CeCu_4Al_8$, and a tetragonal lattice of the $ThMn_{12}$ type with constant a = 8.85 kX, c = 5.19 kX; c/a = 0.586; it is in

Card 1/2

S/137/62/000/008/034/065
A006/A101

The physico-chemical investigation of...

equilibrium with $CuAl_2$, $\omega$ and $T_2$. Compound $T_2$ has a homogeneous range, including $CeCuAl_3$, and is in equilibrium with $CeAl_4$, $CeAl_2$, $\omega$ and $T_1$. In the Ce-Mn-Al system Ce is not dissolved or only very slightly dissolved in Al (Mn) solid solution. At 600 and 500°C, 1.2% (0.59 at. %) and 0.5% (0.25 at. %) Mn respectively are dissolved in Al. At 500°C, the Al base solid solution ($\omega$-phase) is in equilibrium with $MnAl_6$, $CeAl_4$ and $T_1$. Compound $T_1$ has a homogeneous range including compound $CeMn_4Al_8$ and is in equilibrium with $\omega$, $CeAl_2$, $CeAl_4$, and compounds of Mn with Al and $T_2$. The structure of compound $T_1$ is tetragonal of the $ThMn_{12}$ type with constant a = 9.01 kX, c = 5.15 kX; c/a = 0.573. The homogeneous range of the $T_2$ compound includes compound $Ce_5MnAl_{14}$. Compound $T_2$ is in equilibrium with $T_1$, $CeAl_2$ and $CeAl_4$.

Z. Rogachevskaya

[Abstracter's note: Complete translation]

Card 2/2

S/849/62/000/000/016/016
A006/A101

AUTHOR: Gladyshevskiy, Ye. I., Kripyakevich, P. I.

TITLE: Intermetallic compounds with a β-uranium type (sigma-phase) structure

SOURCE: Vysokotemperaturnyye metallokeramicheskiye materialy. Inst. metalloker. i spets. spl. AN Ukr.SSR, Kiev, Izd-vo AN Ukr.SSR, 1962, 148 - 150)

TEXT: There are 31 systems of intermetallic compounds with a β-uranium type structure, the so called sigma-phase. The components of these systems are on the one hand elements of sub-groups 4 - 6 of the periodic system, and on the other hand sub-groups 7 - 10. A similar distribution of components is also shown by type α-Mn and $Cr_3Si$ compounds. Considering the similar structure of $Cr_3Si$ and sigma phases, it can be expected that the latter will also be formed by elements of sub-groups 11 - 15. This hypothesis was confirmed by the authors who discovered a compound with a sigma phase structure in ternary system Cr-Ni--Si. None of its binary systems contains a sigma phase, but system Cr-Ni shows a tendency for the formation of such phases, and in system Cr-Si a $Cr_3Si$ type

compound is being formed. The discovered sigma phase composition is $Cr_{13}Ni_5Si_2$; its constants are: a = 8.769, c = 4.561 kX, c/a = 0.52. A second compound was revealed in Nb alloys with Al, obtained at the Institute of Metallurgy AS USSR by Ye. M. Savitskiy and V. V. Baron. A radiographical analysis shows that the $Nb_2Al$ compound belongs to the sigma phase type. Its constants are: a = 9.95; c = 5.18 kX; c/a = 0.52. This is the first sigma phase containing Al. The distribution of atoms in its structure corresponds to a complete order (the Nb atoms are in locations with coordination number 15 and 14 and Al-atoms with coordination number 12). Crystallochemically the compounds approach the $Nb_3Al$ ($Cr_2Si$ type) compounds and sigma phases in systems Nb-Re and Nb-Pt. Moreover, the authors have discovered a number of ternary systems whose radiographs resemble those of sigma phases but are not identical with them.

S/021/62/000/011/010/013
D251/D308

AUTHOR: Kryp'yakevych, P. I.

TITLE: Crystalline structure of the compound MgCoNi

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 11, 1962, 1460-1462

TEXT: Ternary Mg-Co-Ni alloys (the section $MgNi_2$-'$MgCo_2$') were prepared from 99.94% Mg and electrolytic Co and Ni by fusion in porcelain crucibles under a halide (NaCl + KCl) flux. The thermal treatment consisted of 600 hrs at 400°C. X ray phase analysis of these alloys revealed the existence of a new ternary compound, MgCoNi possessing a $MgZn_2$ lattice with Co and Ni in place of Zn, and with a = 4.848 ± 0.003 and c = 7.899 ± 0.004 Å. There are 2 tables.

ASSOCIATION: L'vivs'kyy derzhavnyy universytet (L'viv State University)

Card 1/2

Crystalline structure of ... S/021/62/000/011/010/013
D251/D308

PRESENTED: by I. M. Frantsevych, Academician

SUBMITTED: January 28, 1962

Card 2/2

S/021/62/000/012/016/018
D205/D307

Kryp'yakevych, P.I.

AUTHORS: **Kryp'yakevych**, P.I. and Yevdokymenko, V.I.

TITLE: **Crystalline structures** of magnesium-rich compounds **in the systems** Er-Mg, Dy-Mg and Y-Mg

PERIODICAL: **Akademiya nauk Ukrayins'koyi RSR. Dopovidi**, no. 12, 1962, 1610-1612

TEXT: **Er-Mg alloys were prepared** by fusing 99.7% Er (containing 0.1% of **other lanthanons**, 0.02% Fe, 0.14% Ca, and 0.04% Cu) with 99.9% Mg, in **a corundum crucible**, under a cover of molten KCl/MgCl mixture, in a resistance furnace. X-ray analysis with

possessing a structure of the $Ti_5Re_{24}$ type (Cr in superlattice). Analogous compounds $Dy_5Mg_{24}$ and $Y_5Mg_{24}$ were also prepared, with lattice constants, a, equal to 11.24 and 11.25 Å respectively. There is 1 table.

ASSOCIATION: L'vivskyy derzhavnyy universytet (L'vov State University)

Card 1/2

Crystalline structures ...

S/021/62/[illegible]/012/016/018
D205/D307

AUTHOR: by I.M. Frantsevych, academician.

SUBMITTED: January 28, 1962

Card 2/2

33707

S/192/62/003/001/001/002
D258/D303

52610 4016

AUTHORS: Kripyakevich, P.I. and Pylayeva, Ye.N.

TITLE: The crystal structure of $Ta_2Ni$

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no. 1, 1962, 35-37

TEXT: The authors confirmed by x-ray analysis the existence of $TaNi_2$, TaNi (or a compound with a composition near to it), and $Ta_2Ni$; they also defined the crystal structure of the latter. The 3 compounds have been identified by I.I. Kornilov and Ye.N.Pylayeva (Ref.5: Zh.neorg.khimii, in press), being formed in the following reactions: (1) $TaNi_2 \rightleftarrows \ell + TaNi_3$ (1420°C); (2) $TaNi \rightleftarrows \ell + Ta_2Ni$ (1570°C); and (3) $Ta_2Ni \rightleftarrows \ell + \beta$ (1770°C), where $\beta$ is a solid solution of both metals. Specifically, 10g samples of alloys were prepared by induction melting in an atmosphere of purified He. Homogeneous structures and compositions were ensured by firstly, using 99.6% pure Ta and 0000-grade Ni, secondly by

Card 1/4

The crystal ...

avoiding the use of crucibles in melting and thirdly by carefully controlling the composition of charges. The alloys were homogenized for 1000 hrs. at 800°C, prior to their x-ray analysis. The latter proved the existence of the 3 compounds at 8000°C. X-ray powder photography (Cr $K\alpha$ -radiation) of Ta Ni indicated a tetragonal body-centered lattice, with the constants $a = 6.216 \pm 0.005$ Å, $c = 4.872 \pm 0.004$ Å; $c/a = 0.784$. These constants are similar to those of $Ta_2Si$, thus indicating for $Ta_2Ni$ a structure of the $CuAl_2$ type (space group $I4/mcm - D_{4h}^{18}$; 4Ni in 4(a)00 1/4; 8Ta in 8(h) x, 1/2 + x, 0). x was found to vary from 0.155 to 0.167; it was accurately defined by photometry of lines 411, 402, 332, and 004 and found equal to 0.158. The interatomic distances and coordination numbers are given, as follows:

Card 2/4

The crystal ...

| Atoms | d(Å) | Coord.no. |
|---|---|---|
| Ni-2Ni | 2.44) | 10 |
| 8Ta | 2.64) | |
| Ta-4Ni | 2.64) | 15 |
| 1Ta | 2.78) | |
| 2Ta | 2.92) | |
| 4Ta | 3.31) | |

There are 2 tables, 1 figure and 13 references: 4 Soviet-bloc and 9 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: N.Karlsson, J.Inst.Metals, 79, 391 (1951); J.R.Murray, J.Inst.Metals, 84, 4, 91 (1955); P.Duwez and J.L. Taylor, J.Metals, 2, 9, 1173 (1950); and J.S. Kasper and R.M. Waterstrat. Acta crystallogr. 9, 3, 289 (1956).

ASSOCIATION: L'vovskiy gosudarstvenny universitet im. Iv. Franko (Lvov State University im. Iv. Franko); Institut metallurgii

33707

S/192/62/003/001/001/002
D258/D303

The crystal ...

im. A.A. Baykova AN SSSR (Institute of Metallurgy, im. A.A. Baykov, AS USSR)

SUBMITTED: March 2, 1961

Card 4/4

S/192/62/003/004/002/002
I042/I242

AUTHORS: Gladyshevskiy, E.I., Kripyakevich, P.I., and Kuz'ma, Yu.B.

TITLE: Crystal structures of ternary compounds with low silicon content in the systems Cr - Ni - Si and Cr - Co - Si

PERIODICAL: Zhurnal strukturnoy khimii, v. 3, no.4, 1962, 414-423

TEXT: This investigation is a follow up of a previous work by the authors where ternary compounds were obtained in similar systems with Mn in place of Cr. It is also intended to clarify the conditions of formation of phases with the β-U structure. The 148 alloys in the two systems, containing no more than 25 mole % Si, were heated in vacuum at 800°C for 150 hrs or at 1100°C for 30 hrs. They were then studied with the aid of a Debye and Preston X-ray powder cameras and an МИМ-6 (MIM-6) microscope. In the Cr - Ni - Si system at 800°C a new phase was found with the approximate formula $Cr_6Ni_{2.8}Si_{1.2}$ and a powder pattern consistent with the β-U

Card 1/3

S/192/62/003/004/002/002
I042/I242

Crystal structures of ternary compounds...

structure of $Cr_{4.25}Fe_{4.25}Si_{1.5}$. None of the compounds studied had the Laves (i.e., $MgZn_2$, $MgCu_2$, or $MgNi_2$) structure. At 1100°C the the compound $Cr_{6.5}Ni_{2.5}Si$ was observed, with space group P4/mnm and lattice constants a = 8.769, c = 4.561 kX, c/a = 0.520. The structure was found by comparing the observed intensities with those of several possible atomic distributions. Another compound with the formula $Cr_3Ni_5Si_2$ and the $\beta$-Mn structure or the $Au_4Al$ superstructure was observed at 800°C. It has the space group $P2_13$ and a = 6.108 kX. In the Cr - Co - Si system two ternary compounds were found at 800°C. One, $Cr_3Co_5Si_2$, has the $\alpha$-Mn structure or a $Ti_5Re_{24}$ superstructure, space group $I\bar{4}3d$, a = 8.687 kX. The other is $Cr_{3.5}Co_{4.0}Si_{2.5}$ with a structure related to that of $\beta$-U. Again no Laves phases were encountered. There are 9 tables.

Card 2/3

S/192/62/003/004/002/002
I042/I242

Crystal structures of ternary compounds...

ASSOCIATION: Lvovskiy gosudarstvennyy universitet im. Iv. Franko
(Lvov State University im. Iv. Franko)

SUBMITTED: June 26, 1961

Card 3/3

KRIPYAKEVICH, P.I.; YEVDOKIMENKO, V.I.

Crystalline structures of the compounds $Ba_2Mg_{17}$ and $Sr_2Mg_{17}$.
Kristallografiia 7 no.1:31-42 Ja-F '62. (MIRA 15:2)

1. L'vovskiy gosudarstvennyy universitet im. I. Franko.
(Magnesium alloys)
(Crystallography)

KRIPYAKEVICH, P.I.; GLADYSHEVSKIY, Ye.I.; PYLAYEVA, Ye.N.

Compounds of the type $W_6Fe_7$ in the systems Ta - Ni and Nb - Ni.
Kristallografiia 7 no.2:212-216 Mr-Ap '62. (MIRA 15:4)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(Tantalum-nickel-niobium alloys) (Crystallography)

S/070/62/007/002/016/022
E132/E160

AUTHORS: Kripyakevich, P.I., and Kuz'ma, Yu.B.

TITLE: The compounds of rhenium with aluminium and certain of their crystal structures

PERIODICAL: Kristallografiya, v.7, no.2, 1962, 309

TEXT: ReAl (CsCl type with a = 2.88 Å) is already known. In equilibrium with Al there is a cubic compound (a = 7.528 ± 0.001 Å) of the $WAl_{12}$ type. When intensities for $ReAl_{12}$ with the same parameters as $WAl_{12}$ are calculated, good agreement is obtained. There appears to be a compound $ReAl_2$. For 36.5 at.% Al, besides Re, an α-Mn-type phase X was found (I $\bar{4}3$ m with a = 9.58 Å). It may be $Re_{24}Al_5$.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I.Franko (L'vov State University imeni I. Franko)

SUBMITTED: April 10, 1961

Card 1/1

ZARECHNYUK, O.S.; KRIPYAKEVICH, P.I.

Crystalline structures of ternary compounds in the system cerium - transition metal - aluminum. Kristallografiia 7 no.4:543-554 Jl-Ag '62. (MIRA 15:11)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(Systems (Chemistry)) (Crystallography)

KRIPYAKEVICH, P.I.

Structure of the type $Th_3P_4$ described as a pack of polyhedra. Kristallografiia 7 no.5:686-689 S-O '62. (MIRA 15:12)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
(Crystallography) (Thorium phosphate)

32818

18.1215 4016, 1454, 1418

S/020/62/142/001/016/021
B103/B110

AUTHORS: Vaynshteyn, E. Ye., Blokhin, S. M., and Kripyakevich, P. I.

TITLE: X-ray spectroscopic study of titanium beryllides with a high beryllium content

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 1, 1962, 85-87

TEXT: Following Ref. 1 (E. Ye. Vaynshteyn et al., DAN, 135, 642 (1960)), the authors investigated: (a) Phases of the system Ti-Be with a still higher Be content (alloys containing 88, 90, and 93 atom% of Be). (b) The data of Ref. 1 were checked and defined by increased resolving power of the spectroscopic equipment (ДРС (DRS) vacuum longwave spectrograph produced at the experimental workshops of the Rostovskiy gosudarstvennyy universitet (Rostov State University)). Alloys were produced by Ye. I. Gladyshevskiy in corundum crucibles in the Tamman furnace in an argon atmosphere. Both emission and absorption spectra were taken. The reflecting (1010) surface of a bent quartz crystal was used. The method of inclined planes was applied to magnify resolution up to 10,000 times. Emission spectra were taken with an aluminum anode. A tantalum anode was

Card 1/5

used for the absorption spectra. The experimental form and the width of the $K_{\alpha_1}$ line on Ge was investigated to examine dispersion of the function of distortion caused by the parameters of the apparatus, and to determine its half-width. It was found that the two first samples of the alloys had the same trigonal structure: a = 7.40 Å, c = 10.84 Å, and c/a = 1.465. This lattice is equal to that of $Th_2Zn_{17}$ (space group R $\bar{3}$m, Z = 3); hence, it is concluded that $Ti_2Be_{17}$ is produced (in accordance with Ref. 4, see below). It is also possible, however, that solid solutions of $TiBe_{12}$ are involved. These two structures, being very similar to each other (as well as $TiBe_2$), belong to the class of densest packages of unequally large atoms with high coordination numbers. The line broadening is 0.39 ev, i.e., ~28% of the natural half-width of the line. The form of the experimental spectra and the broadening were corrected according to I. Ya. Nikiforov (Izv. AN SSSR, ser. fiz., 21, 1362 (1957)). It was found that the shape and the relative placement of the K absorption edges and of the last emission lines in the titanium spectra of Ti-Be phases with varying Be content were almost

X-ray spectroscopic study ...

identical. The alloys investigated are very similar with respect to atomic interaction, but differ considerably from beryllides with a lower Be content (Figs. 1, 2). This variation is a result of transitions of the K electron into the portion of the hybridized energy band of the alloy close to the 3d energy levels of the main absorption edge. It follows from the spectra investigated: (1) a considerable weakening of the superposition degree of energy bands of valence electrons of the alloy components in $Ti_2Be_{17}$; (2) a weakening of the hybridization degree of the wave functions in the range of the 3d4sp band of the transition metal; and (3) a considerable increase in significance of the role of Be interaction. This leads to a noticeable variation of the effective difference of electronegativities between the two alloy components. Its value can be estimated on the basis of X-ray spectrum data by the relation between the difference ($\Delta x$) of the electronegativities of the components of a binary compound and the energy distance ($\Delta E$) ($K_{\beta''} - K_{\beta_5}$) in the X-ray spectrum of the transition metal. Since this value is 4.8 ev, the effective electronegativity of Be must differ in the intermetallic compound from that of Ti by approximately 0.6 ev instead of

Card 3/5

X-ray spectroscopic study ...

being practically equal. There are 2 figures and 10 references: 8 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Ref. 2: R. F. Raeuchle, R. E. Rundle, Acta Crystallogr., 5, 85 (1952); Ref. 4: P. M. Paine, J. A. Carrabine, Acta Crystallogr., 13, 680 (1960).

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Inorganic Chemistry of the Siberian Branch of the Academy of Sciences USSR). L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University imeni I. Franko)

PRESENTED: July 1, 1961, by A. P. Vinogradov, Academician

SUBMITTED: July 8, 1961

Fig. 1. X-ray K absorption spectra and last emission lines of Ti in $TiBe_2$ and $Ti_2B_{17}$. Legend: Abscissa: ev.

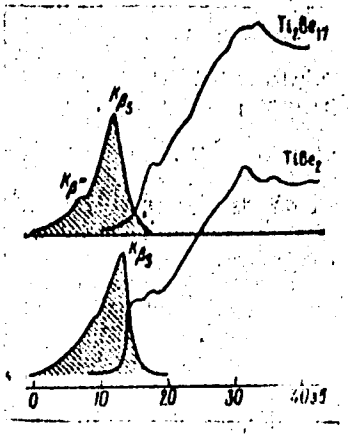
Fig. 2. X-ray K absorption spectra of Ti in $TiBe_2$ and $Ti_2Be_{17}$ after

32818
S/020/62/142/001/016/021
B103/B110

X-ray spectroscopic study ...

correction for distortions due to parameters of the apparatus and for the width of the K level of Ti which was assumed to be 0.74 ev.
Legend: Abscissa: ev.

Fig. 1



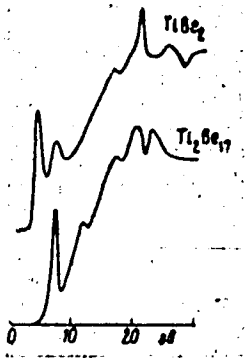




Fig. 2

Card 5/5

KRIPYAKEVICH, P.I. [Kryp'iakevych, P.I.]; OLEKSIV, G.I. [Oleksiv, H.I.]

Crystal structure of the $Sr_6Li_{23}$ compound. Dop. AN URSR no.11: 1489 '63. (MIRA 17:12)

1. L'vovskiy gosudarstvennyy universitet.

GLADYSHEVSKIY, Ye. I.; KRIPYAKEVICH, P. I.

"Some regularities of the crystal chemistry of the rare-earth intermetallic compounds."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Lab or Inorganic Chemistry, L'vov I. Franko State Univ.

ACCESSION NR: AT4035160 S/0000/63/000/000/0067/0070

AUTHOR: Glady*shevskiy, Ye. I.; Kripyakevich, P. I.; Cherkashin, Ye. Ye.; Zarechnyuk, O. S.; Zalutskiy, I. I.; Yevdokimenko, V. I.

TITLE: Crystalline structure of intermetallic compounds of rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 67-70

TOPIC TAGS: rare earth, transition element, geochemistry, binary alloy, ternary alloy, intermetallic compound, alloy crystal structure, zinc, aluminum, germanium

ABSTRACT: The existence of compounds of the rare-earth elements with metals, their composition and the type of crystalline structure were investigated, with particular attention to the similarities and differences between the various rare-earth elements, as well as between these elements and their neighbors in the periodic table. The systems of La, Ce, Pr, Nd, Dy, Er, Gd, Tu and Y with magnesium were investigated first. It was found that there are no complete analogies in these systems, but that the system Y/Mg is closer to Er/Mg than to the La/Ce system. In the systems of rare-earth elements with zinc, aluminum and germanium, new compounds were found, the structural parameters of which are given. It is interesting that the system Y/Al differs from the system Er/Al and is similar to the system with

Card 1/2

ACCESSION NR: AT4035160

La, Ce, Pr and Nd. Compounds of La and Ce with Ge have rhombic modifications in addition to the tetragonal one. Systems with cobalt and iron were also investigated and their parameters are given. In the La/Fe system no compounds are formed. A weakening tendency to form compounds with a decreasing order number of rare-earth elements is also found in many systems with manganese. Finally, the ternary systems cerium-transition metal (or copper)-aluminum and cerium-aluminum-silicon were investigated and their lattice constants are given. Orig.art.has: no graphics.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: IC, ES NO REF SOV: 000 OTHER: 001

Card 2/2

ACCESSION NR: AP4006584 S/0021/63/000/004/0492/0495

AUTHOR: Kry*p'yakevy*ch, P. I.; Kuz'ma, Yu. B.; Protasov, V. S.

TITLE: Crystal structure of compounds in scandium-rhenium system

SOURCE: AN UkrRSR. Dopovidi, no. 4, 1963, 492-495

TOPIC TAGS: scandium rhenium system, scandium rhenium compound, crystal structure, crystal lattice, scandium rhenium alloy

ABSTRACT: Two compounds were found in the scandium-rhenium system by x-ray diffraction studies with a Debye camera. These were: $ScRe_2$ ($MgZn_2$ structure, with $a = 5.271 \pm 0.002$ Å, $c = 8.592 \pm \pm 0.004$ A, $c/a = 1.630$) space group $P6_3/mmc\text{-}D^4_{6h}$ $Sc_6Re_{44}$ ($Ti_6Re_{44}$ structure, with a = 9.65 A, space group $I\,\bar{4}3m\text{-}T^3_d$)

In slowly cooled alloys the latter compound exists in equilibrium with Re. An earlier hypothesis that this system should be analogous to the systems Zr-Re and Hf-Re (due to the close values of atomic radius for Sc, Zr, and Hf) in the regions of high Re consent was fully verified.

ASSOCIATION: L'vivsky*y derzhavny*y universy*tet (L'vov State University)

SUBMITTED: 19May62 DATE ACQ: 03May63 ENCL: 00

Card 1/1 SUB CODE: ML NO REF SOV: 003 OTHER: 002

KRIPYAKEVICH, P.I.

Systematics of the structural types of intermetallic compounds.
Zhur.strukt.khim. 4 no.1:117-136 Ja-F '63. (MIRA 16:2)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.
(Intermetallic compounds) (Crystallography)

KRIPYAKEVICH, P.I.

Systematics of the structural types of intermetallic compounds (ending). Zhur.strukt.khim. 4 no.2:282-299 Mr-Ap '63. (MIRA 16:5)

1. L'vovskiy gosudarstvennyy universitet imeni Iv.Franko.
(Intermetallic compounds) (Crystallography)

GLADYSHEVSKIY, Ye.I.; KUZ'MA, Yu.B.; KRIPYAKEVICH, P.I.

Crystal structures of the compounds $Mn_3Ni_2Si$, $V_3Ni_2Si$, $Nb_3Ni_2Si$, and of Cr and Ta compounds related to them. Zhur.strukt.khim. 4 no.3:372-379 My-Je '63. (MIRA 16:6)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.
(Nickel-silicon alloys) (Crystallography)

S/070/63/008/002/001/017
E021/E120

AUTHORS: Yevdokimenko V.I., and Kripyakevich P.I.

TITLE: The crystal structure of magnesium-rich compounds in the La-Mg, Ce-Mg and Nd-Mg systems

PERIODICAL: Kristallografiya, v.8, no.2, 1963, 186-193

TEXT: Alloys of composition $R_2Mg_{17}$ (where R = La, Ce, Pr, Nd) were prepared by melting lanthanum (98.48% lanthanum, 1.5% other rare earth elements, 0.02% iron and $3 \times 10^{-4}$% cadmium, lead, bismuth, tin and antimony), cerium (98.567% cerium), praseodymium (96% Pr, 1.7% Nd, 0.2% $CeO_2$, < 0.2% $La_2O_3$, 0.002% Cu, 0.01% Fe and neodymium (97.07% Nd, 1.5% Pr, 0.3% La, 1.0% Sm, 0.1% Ce, 0.03% Ca) with magnesium (99.9% Mg) under a flux of lithium and potassium chloride. Debye X-ray diffraction patterns of the slowly cooled alloys were obtained using CrK radiation. All the lines obtained from $La_2Mg_{17}$, and $Ce_2Mg_{17}$ were indexes on the lines of a hexagonal structure with c/a ratios of 0.988 and 0.992 respectively. The lattice parameters for $La_2Mg_{17}$ were a = 10.36 and c = 10.24 Å. Those for $Ce_2Mg_{17}$ were a = 10.35 and c = 10.26 Å. The calculated

Card 1/2

specific weights were 2.4 and 2.41 and the experimental values were 2.36 and 2.42 g/cm$^3$ for $La_2Mg_{17}$ and $Ce_2Mg_{17}$ respectively.

A comparison of the calculated and actual intensities confirmed that these two compounds belong to the $Th_2Ni_{17}$ type lattice. The X-ray results of an alloy containing 10.5 at.% neodymium and 89 at.% magnesium showed that a tetragonal compound with $c/a = 1/\sqrt{3}$ was formed. This was of the type $ThMn_{12}$ and had parameters a = 10.31 and c = 5.93 Å. Intensities calculated on the basis of a $ThMn_{12}$-type lattice agreed with the experimental values. Thus the alloy consisted mainly of $NdMg_{12}$ (92.3 at.% Mg).
There are 3 tables.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I.Franko
(L'vov State University imeni I. Franko)

SUBMITTED: April 2, 1962

Card 2/2

S/070/63/008/002/010/017
B075/B535

AUTHORS: Kripyakevich, P.I., Terekhova, V.F., Zarechnyuk, O.S. and Burov, I.V.

TITLE: Crystal structures of some intermetallic compounds of gadolinium and neodym

PERIODICAL: Kristallografiya, v. 8, no. 2, 1963, 268

TEXT: Earlier published results of the authors of X-ray structural investigations on the alloy gadolinium with about 50.8 at.% (60% by weight) Fe have shown that this alloy consists [illegible] type structure (hexagonal

c/a = 1.450) is the main component of the alloy
Card 1/3

S/070/63/008/002/010/017
E073/E335

Crystal structures of ....

(70% by weight) Fe in the charge; the type $Th_2Ni_{17}$ (a = 8.50, c = 8.35 Å, c/a = 0.984) compound is the basic component of the alloy with 89.5 at.% (75.2% by weight) Fe. The ranges of homo-
[illegible] are being studied to determine them [illegible] and

alloy with 89.5 at.% (75.2% by weight) [illegible]
geneity of these compounds are being studied to determine them
more accurately. Contrary to the findings of Novy, Vickery and
Kleber, the authors of this paper found that the compound richest
in Co was $Gd_2Co_{17}$ ($Th_2Ni_{17}$ type structure, a = 8.37, c = 8.14 Å,
c/a = 0.973) and not $GdCo_5$. For compounds of Nd with Fe, which
are in equlibrium with α-Fe, the authors found that their
structure was of the type $Th_2Zn_{17}$ (a = 8.59, c = 12.47 Å,
c/a = 1.451). For $GdRu_2$ Compton and Matthias (Acta crystallogr.
12, 9, 651, 1959) found that the structure was of the type $MgZn_2$.
However, the authors of this communication found that it also
had a second modification with a structure of the type
[illegible] GdMg the existence of the [illegible]

$GdMg_2$ (type $MgCu_2$; a = 8.55 Å; [illegible])

Card 2/3

S/070/63/008/002/010/017
E073/E335

Crystal structures of ....

ASSOCIATIONS: L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University im. I. Franko)
Institut metallurgii im. A.A. Baykova (Institute of Metallurgy im. A.A. Baykov)

SUBMITTED: July 9, 1962

Card 3/3

KRIPYAKEVICH, P.I.; GLADYSHEVSKIY, Ye.I.

Crystalline structures of compounds rich in beryllium in the systems Mo - Be and W - Be. Kristallografiia 8 no.3:449-451 My-Je '63. (MIRA 16:11)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.

L 18097-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG
ACCESSION NR: AP3004096 S/0070/63/008/004/0595/0599

AUTHORS: Kripyakevich, P. I.; Gladyshevskiy, Ye. I.; Zarechnyuk, O. S.; Yevdokimenko, V. I.; Zalutskiy, I. I.; Frankevich, D. P.

TITLE: Some patterns in the crystal chemistry of intermetallic compounds of rare-earth metals

SOURCE: Kristallografiya, v. 8, no. 4, 1963, 595-599

TOPIC TAGS: crystal chemistry, rare earth, morphotropic series, isostructural series, lattice, atomic number

ABSTRACT: The authors have used data from the literature as well as their own experimental work to study the intermetallic compounds of rare-earth metals. The aspects studied include isostructure, morphotropy, dependence of lattice constants on atomic number, and the formation of tertiary compounds. In view of inadequate data on isostructural compounds, the exact character of such series cannot be predicted, but it is thought unlikely that complete isostructural series will be found for the rare earths (i.e., series including all the rare earths). The compounds will most probably form a morphotropic series of identical compositions

Card 1/2

L 18097-63
ACCESSION NR: AP3004096

5

or a morphotropic series of varying compositions. In most morphotropic series, beginning with some particular rare earth, a certain structural type gives way to another, as occurs at the boundary between the cerium and yttrium groups. Such series are commonly polymorphous. Successive changes in atomic number lead in some series to changes in both composition and structure. The atomic radius, which does not change consistently with increase in atomic number, is an effective characteristic in determining isostructural and morphotropic series. Compounds of certain structural types that are absent in double systems may show up in tertiary or quaternary systems. An example is the existence of compounds of $Th_2Zn_{17}$ and $ThMn_{12}$ in the system Ce-Mn-Al, although they are absent in the system Ce-Mn. They exist in the related double systems Ce-Fe and Th-Mn. Orig. art. has: 1 figure and 1 table.

27

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. I. Franko (L'vov State University)

SUBMITTED: 14Mar63 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 014 OTHER: 007

Card 2/2

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; FRANKEVICH, D.P.

Crystalline structure of rare earth metal compounds containing beryllium($RBe_{13}$). Kristalografiia 8 no.5:788-789 S-O '63. (MIRA 16:10)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.

CHERKASHIN, Ye.Ye.; KRIPYAKEVICH, P.I.; OLEKSIV, G.I.

Crystalline structures of ternary compounds in the systems Li - Cu - Al and Li - Zn - Al. Kristallografiia 8 no.6: 846-851 N-D'63. (MIRA 17:2)

1. L'vovskiy gosudarstvennyy universitet imeni I. Franko.

KRIPYAKEVICH, P.I. [Kryp'iakevych, P.I.]; MARKIV, V.Ya.

Crystalline structure of ternary compounds in the systems Ti (V) - Fe (Co, Ni) - Sn (Sb). Dop. AN URSR no.12:1606-1608 '63. (MIRA 17:9)

1. L'vovskiy gosudarstvennyy universitet. Predstavleno akademikom AN UkrSSR V.N. Svechnikovym [Sviechnykov, V.M.].

KRIP'YAKEVICH P I.

ACCESSION NR: AP4012589 S/0021/64/000/002/0212/0215

AUTHOR: Kry*p"yakevy*ch, P. I.; Protasov, V. S.; Khz'ma, Yu. B.

TITLE: Crystal structures of compounds of scandium with some transition metals

SOURCE: AN UkrRSR. Dopovidi, no. 2, 1964, 212-215

TOPIC TAGS: metals, alloys, steel, scandium, $ScCo_2$, zirconium-rhenium system, hafnium-rhenium system, scandium-rhenium system, X-ray diffraction Sc $Mn_2$

ABSTRACT: In former work by the authors (Dopovidi AN UkrRSR, 1963, 492) the structural analogy between the system Sc-Re, on the one hand, and the systems Zr-Re and Hf-Re, on the other hand, was established. In this instance the structure of alloys of Sc with Mn, Co, and Cu was investigated by the X-ray diffraction method. The existence of the following compounds was established and their structure determined: $ScMn_2$ ($MgZn_2$ type, a = 5.03 A, c = 8.19 A, c/a = 1.63); $ScCo_2$ ($MgCu_2$ type, a = 6.89 A); ScCo (CsCl type, a = 3.16 A); ScCu (CsCl type, a = 3.24 A). The results obtained confirmed the correctness of the assumption, as far as compounds with a low Sc content are concerned, that there

Card 1/2

ACCESSION NR: AP4012589

is a crystal-chemical analogy between Sc, on the one hand, and Zr and Hf, on the other. Orig. art. has: 3 tables.

ASSOCIATION: L'vivs'ky*y Derzhavny*y Universy*tet (L'vov State University)

SUBMITTED: 31Jan63 DATE ACQ: 03Mar64 ENCL: 00

SUB CODE: ML, EL NO REF SOV: 003 OTHER: 002

Card 2/2

KRIPYAKEVICH, P.I. [Kryp'iakevych, P.I.]; YEVDOKIMENKO, V.I. [IE dokymenko, V.I.]; ZALUTSKIY, I.I. [Zaluts'kyi, I.I.]

Hexagonal Laves phases in the alloys of magnesium with rare earth metals. Dop. AN URSR no. 6:766-769 '64. (MIRA 17:9)

1. L'vovskiy gosudarstvennyy universitet. Predstavleno akademikom AN UkrSSR V.N.Svechnikovym [Svichnykov, V.M.].

ACCESSION NR: AP4042825 S/0021/64/000/007/0922/0924

AUTHOR: Kry°p"yakevy°ch, P. I.(Kripyakevich, P. I.); Markiv, V. Ya.; Troyan, A. O. (Troyan, A. A.)

TITLE: Crystal structures of TiCuAl and TiNiAl ternary compounds

SOURCE: AN UkrSSR. Dopovidi, no. 7, 1964, 922-924

TOPIC TAGS: titanium nickel aluminum system, titanium copper aluminum compound, compound composition, compound structure, lattice constant

ABSTRACT: The composition and crystal structure of a ternary $TiCu_wAl_z$ compound, previously found in the Ti-Cu-Al system, were investigated. Alloys containing 33 at.% Ti, 16.7—61.7 at.% Cu, and 5—50 at.% Al were melted from iodide titanium, 99.996% pure copper, and aluminum in a helium atmosphere in an electric arc furnace and annealed at 800C for 350 hours. Among the obtained alloys, x-ray structural and microstructural analyses identified one as an almost homogeneous TiCuAl alloy and several inhomogeneous alloys. Except for a small amount of a $TiCu_2Al$ compound, the TiCuAl alloy consisted of a compound of an approximately TiDuAl composition and a hexagonal

Card 1/2

ACCESSION NR: AP4042825

structure of the $MgZn_2$ type, with the lattice constants a = 5.026 ± 0.004 Å, c = 8.084 ± 0.004 Å, c/a = 1.608, and titanium atoms in positions with a coordination number of 16. A similar investigation of alloys of the Ti-Ni-Al system revealed the existence of a compound with a $MgZn_2$-type structure, a = 4.999 ± 0.003 Å, c = 8.049 ± 0.005 Å, c/a = 1.610, and a composition close to that of TiNiAl in equilibrium with a $TiNi_2Al$ compound. No analogous compound was found in the Ti-Co-Al system. Orig. art. has: 1 table.

ASSOCIATION: L'vive'ky*y derzhavny*y universy*tet (L'vov State University)

SUBMITTED: 28Jun63 ATD PRESS: 3077 ENCL: 00

SUB CODE: MM, SS NO REF SOV: 003 OTHER: 005

Card 2/2

ZARECHNYUK, O.S.; KRIPYAKEVICH, P.I. [Kryp'iakevych, P.I.]

Crystal structure of $Ce_2Co_{17}$, $Y_2Co_{17}$, and $Y_2Fe_{17}$ compounds. Dop. AN URSR no. 12:1593-1595 '64. (MIRA 18:1)

1. L'vovskiy gosudarstvennyy universitet. Predstavleno akademikom AN UkrSSR V.N.Svechnikovym [Sviechnikov,V.M.].

GLADYSHEVSKIY, Ye.I.; OLEKSIV, G.I.; KRIPYAKEVICH, P.I.

New representatives of the structural type $Li_{22}Pb_5$.
Kristallografiia 9 no.3:338-341 My-Je '64. (MIRA 17:6)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.

ACCESSION NR: AP4039400 S/0070/64/009/003/0410/0411

AUTHORS: Kripyakevich, P. I.; Yevdokimenko, V. I.; Glady*shevskiy, Ye. I.

TITLE: Compounds with a superlattice such as Alpha manganese in systems of rare earth metals and magnesium

SOURCE: Kristallografiya, v. 9, no. 3, 1964, 410-411

TOPIC TAGS: superlattice, alpha manganese, rare earth, magnesium, x ray study

ABSTRACT: The authors have prepared alloys of Tb, Ho, Tu, Yb, and Lu containing 82.8 atomic % of Mg in the charge (i.e., corresponding to a composition of $R_5Mg_{24}$), by alloying Tb (99.1%, 0.5% other rare earths), Ho (97.4%, 2.1% other), Tu (94.7%, 5.1% other), Yb (99.96%, 0.005% other), and Lu (95.7%, 3.8% other) with Mg (99.9%) in crucibles of MgO with a flux (LiCl + KCl) in a Tamman furnace (atmosphere of He or A). The alloys are silvery white, and they oxidize in air, but much more slowly than alloys of Mg with rare earths of the Ce group. X-ray studies show that Tu and Lu alloys contain pure compounds of the $Ti_5Re_{24}$ type, but that Tb and Ho alloys contain this type of compound in equilibrium with other compounds, particularly $TbMg_3$ and $HoMg_2$. Experimental intensities for $Tu_5Mg_{24}$ (visual observation) are in

Card 1/2

ACCESSION NR: AP4039400

good agreement with computed values. X-ray patterns for other compounds of the type $R_5Mg_{24}$ are almost indistinguishable from those for $Tu_5Mg_{24}$ relative to experimental intensities. The lattice constant a for different compounds with the formula $R_5Mg_{24}$, in Å, are: 11.283, 11.246, 11.233, 11.224, 11.208, 11.185, and 11.257 for Tb, Dy, Ho, Er, Tu, Lu, and Y, respectively. The value may be seen to decrease with increase in atomic number (except for Y, which is between Tb and Dy). Orig. art. has: 2 tables.

ASSOCIATION: L'vovskiy gosudarstvenny*y universitet im. I. Franko (Lvov State University)

SUBMITTED: 01Aug63

SUB CODE: SS, OP NO REF SOV: 006 ENCL: 00

OTHER: 001

Card 2/2

YEVDOKIMENKO, V.I.; KRIPYAKEVICH, P.I.

Crystalline structure of a compound rich in magnesium in the system Pr--Mg. Kristallografiia 9 no.4:554-556 Jl-Ag '64.
(MIRA 17:11)

1. L'vovskiy gosudarstvennyy universitet imeni Ivana Franko.

TESLYUK, M.Yu.; KRIPYAKEVICH, P.I.; FRANKEVICH, D.P.

New Laves phases containing manganese. Kristallografiia 9 no.4: 558-559 Jl-Ag '64. (MIRA 17:11)

1. L'vovskiy gosudarstvennyy universitet imeni Franko.

Card 3/3

[redacted]

KRIPYAKEVICH, P. I.

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; YARMOLYUK, Ya.P.

Crystalline structure of $Mn_6Si$. Izv. AN SSSR. Neorg. mat. 1 no.7: 1086-1089 Jl '65. (MIRA 18:9)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.

SHURIN, A.K.; KRIVAREVICH, P.I.; GLADYSH[illegible], Ye.I.

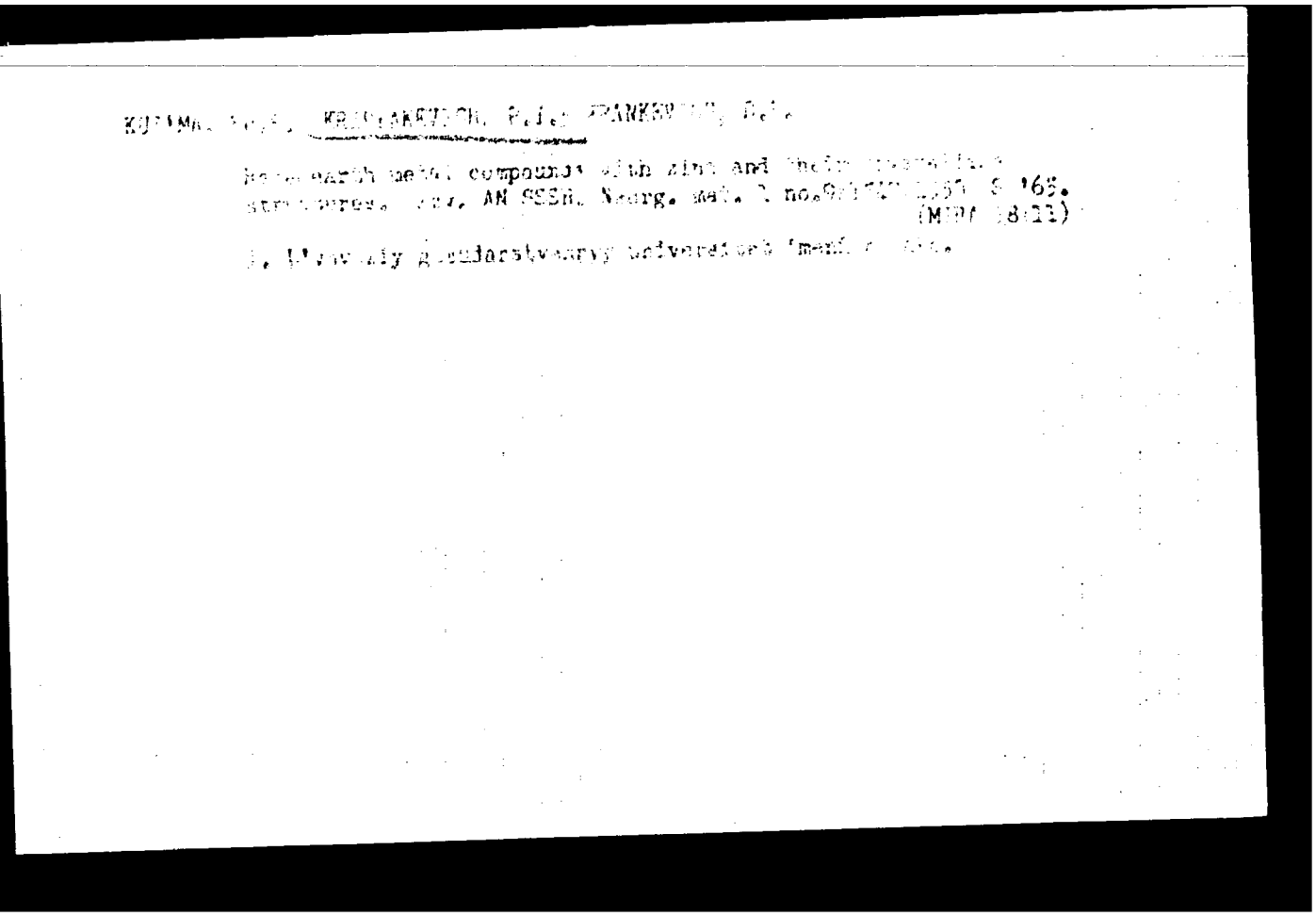
Crystalline structure of the Mn[illegible]. Kristallografiia 10 no.3:414-416 My-Je '65. (MIRA 18:7)

1. Institut metallofiziki AN UkrSSR i L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.

Crystalline structures of the compounds $La_5Si_3$, $Ce_5Si_3$, $Pr_5Si_3$, $Nd_5Si_3$ and $Sm_5Si_3$. Izv. AN SSSR. Neorg. mat. 1 no.5:702-705 My '65. (MIRA 18:10)

1. L'vovskiy gosudarstvennyy universitet imeni Franko.



KRIPYAKEVICH, P.I.; FRANKEVICH, D.P.; VOROSHILOV, Yu.V.

Compounds with structures of the $Th_6Mn_{23}$ type in rare-earth metal alloys with manganese and iron. Porosh.met. 5 no.11:55-61 N '65. (MIRA 18:12)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
Submitted March 9, 1965.

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.

Crystal structures of certain silicides of strontium. Zhur. strukt. khim. 6 no.1:163-164 Ja-F '65. (MIRA 18:12)

1. L'vovskiy gosudarstvennyy universitet imeni Iv. Franko.
Submitted June 15, 1964.